## Supervised Learning: Regression

The first type of *supervised learning* that we'll look at is *classification*. Again, the main distinguishing characteristic of regression is the type of output it produces:

In a regression problem, the output is numerical or continuous.

## Introduction to Regression

## Intro to Regression Common types of regression problems: • Regression on tabular data • Regression on image or sound data • Regression on text data • Regression on text data • Regression on text data Examples: • Housing prices • Customer churn • Customer Lifetime Value

Common types of regression problems include:

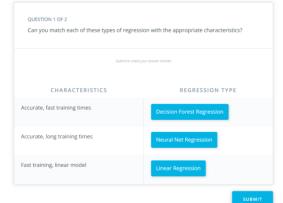
- Regression on tabular data: The data is available in the form of rows and columns, potentially
  originating from a wide variety of data sources.
- Regression on image or sound data: Training data consists of images/sounds whose numerical scores are already known. Several steps need to be performed during the preparation phase to transform images/sounds into numerical vectors accepted by the algorithms.
- Regression on text data: Training data consists of texts whose numerical scores are already known.
   Several steps need to be performed during the preparation phase to transform text into numerical vectors accepted by the algorithms.

## Categories of Algorithms



Common machine learning algorithms for regression problems include:

- Linear Regression
  - Fast training, linear model
- Decision Forest Regression
- Accurate, fast training times
- Neural Net Regression
  - Accurate, long training times



A value that defines the step taken at each iteration, before correction.

DESCRIPTION

A value that defines the step taken at each iteration, before correction.

Penalize models to prevent overfitting.

Learning rate

The maximum number of times the algorithm processes the training cases.

A method that minimizes the amount of error at each step of the model training process.

SUBMIT